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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/864,650	05/23/2001	Ryushin Omasa	2551-84	3773

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PITNEY, HARDIN, KIPP & SZUCH LLP
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NEW YORK, NY 10017-4024

EXAMINER

LEADER, WILLIAM T

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 10/30/2003

7

Please find below and/or attached an Office communication concerning this application or proceeding.

CLO-7

Office Action Summary	Applicati n No. 09/864,650	Applicant(s) OMASA, RYUSHIN	
	Examiner William T. Leader	Art Unit 1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____. | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Receipt of the amendment filed on August 14, 2003, is acknowledged. Claims 1-11 are pending.
2. The amendment to the claims is considered to overcome the rejections under 35 U.S.C. 112, first and second paragraphs.
3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

4. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Omasa (6,123,815) in view of Lashmore (4,461,680) for the reasons given in the previous office action and in view of the following comments.
5. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Omasa (6,123,815) in view of Lashmore (4,461,680) as applied to claims 1-9 above, and further in view of *The Electroplating Engineering Handbook*, A, Kenneth Graham, editor, for the reasons given in the previous office action and in view of the following comments.

6. Applicant's Remarks have been carefully considered but are not deemed to be persuasive. At page 5 of the Remarks, applicant argues that the result of uniformly plating minute holes having a diameter of 0.2 mm or less obtained in the process of the Omasa patent can be achieved only when A) vibrationally stirring apparatus, B) aeration apparatus, C) apparatus for swinging the electrode bar, and D) apparatus for applying vibration to the electrode bar are used simultaneously. This argument is not convincing. Instant claim 1 recites a method which requires that vibrational flow be induced by vibrating at least one vibrational vane which is fixed to a vibrating rod. Omasa discloses vibrating vanes 17 attaches to vibrating rod 16, meeting the limitation recited in instant claim 1. While the process of claim 1 does not require the use of aeration apparatus, the claim is written using open claim language and allows process steps in addition to the steps specifically recited to be performed. Thus, instant claim 1 does not preclude the use of aeration in addition to vibration.

7. At page 6 of the Remarks, applicant argues that the Lashmore reference does not suggest the plating of a microstructured conductive pattern such as that of the present invention, or suggest any application to such a method as that of the Omasa reference. The Examiner concurs that Lashmore does not specifically teach plating a microstructured conductive pattern. Rather, Lashmore discusses the advantages of using pulse plating in electroplating processes more broadly, suggesting that the

advantages would be obtained in electroplating processes generally, including processes in which a microstructured conductive pattern is plated. It is noted that instant claim 1 recites a "plating target article" disposed so as to be in contact with a plating bath, but does not further limit the target to be plated. Thus, claim 1 encompasses plating on a target of any configuration and does not distinguish from the references on the basis of the workpiece plated.

8. Instant claim 9 does recite that the plating target article has a face to be plated having a microstructure of a dimension of 50 μm or less. Omasa discloses that the method may be used to plate a printed wiring board which has openings with a diameter of 0.01 mm (10 μm). See column 3, line 61 to column 4, line 5. This size falls within the range recited in claim 9. Thus, the process of the primary reference is adapted to plate a target article with a microstructured pattern.

9. At page 6 of the Remarks, applicant also mentions that when components A) to D) of Omasa are included, particularly the aeration apparatus, the plating apparatus becomes remarkably large in size compared to the apparatus of the present invention. This argument is not convincing because the claims under consideration are directed to a process, not apparatus.

10. Applicant further argues that according to the present invention a microstructured conductive pattern with high quality can be obtained at high speed by a relatively small apparatus and points to the examples and comparative

examples to show that if one of the vibrationally stirring and pulse current is not used, the object of the present invention cannot be achieved. A showing of unexpected results must be commensurate in scope with the claimed subject matter. As pointed out above, instant claim 1 is broadly directed to plating on a target of any configuration. Thus, results relating to the plating of a microstructured conductive pattern are not commensurate in scope with the claim 1. Moreover, the results obtained must be unexpected, not merely different. Lashmore teaches that pulse plating results in deposits of high quality. The Shabrang et al patent (4,720,33) is directed to an electroplating method and device. Shabrang et al teach that in the practice of electroplating metal surfaces, it is well-known that application of a modulating current, such as pulsed current, has two major advantages: it improves the properties of the deposit, and it allows faster plating rates. See column 1, lines 11-20). High quality and high speed are the features mentioned by applicant. As shown by the prior art, these features are not unexpected.

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is

filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William T. Leader whose telephone number is 703-308-2530. The examiner can normally be reached on Mondays-Thursdays and alternate Fridays, 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King, can be reached on 703-308-1146. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

WV

William Leader
October 23, 2003

ROY KING
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700